Air Quality Permitting
Technical Memorandum

TIER II Operating Permit No. 019-00041

YELLOWSTONE PLASTICS, INC. - IDAHO FALLS

Prepared by: Kent Berry
Environmental Quality Management

PROJECT # T2-010508

March 19, 2002

FINAL PERMIT

TABLE OF CONTENTS

LIST OF ACRONYMS

ACFM	Actual Cubic Feet Per Minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
BACT	Best Available Control Technology
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DEQ	Idaho Department of Environmental Quality
dscf	Dry Standard Cubic Feet
EF	Emission Factor
EPA	United States Environmental Protection Agency
gpm	Gallons Per Minute
gr	Grain (1 lb = 7,000 grains)
HAPs	Hazardous Air Pollutants
IC	Integrated Chip
IDAPA	Idaho Administrative Procedures Act
km	Kilometer
lb/hr	Pound Per Hour
MACT	Maximum Available Control Technology
MMBtu	Million British Thermal Units
NESHAP	Nation Emission Standards for Hazardous Air Pollutants
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
NSPS	New Source Performance Standards
O_3	Ozone
OP	Operating Permit
PM	Particulate Matter
PM_{10}	Particulate Matter with an Aerodynamic Diameter of 10 Micrometers or Less
ppm	Parts Per Million
PSD	Prevention of Significant Deterioration
PTC	Permit To Construct
PTE	Potential To Emit
SCC	Source Classificaiton Code
scf	Standard Cubic Feet
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
TSP	Total Suspended Particulates
T/yr	Tons Per Year
µm	Micrometers
VOC	Volatile Organic Compound

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01 Sections 404.04 (*Rules for the Control of Air Pollution in Idaho*) (*Rules*) for Tier II Operating Permits.

PROJECT DESCRIPTION

Yellowstone Plastics has requested that they be made a synthetic minor source and thus exempt from Tier I permitting. Their current Permit to Construct (PTC) #019-00041 issued October 13, 2000, limits hazardous air pollutants (HAPs) to less than 10 tons per year (T/yr) for any single HAP and 25 T/yr total HAPs. The PTC limits volatile organic compounds (VOCs) to less than 249 T/yr. The emission sources at the facility are described in the December 1, 1998, Technical memorandum for the original PTC dated December 2, 1998 (see Appendix).

FACILITY DESCRIPTION

Yellowstone Plastics does flexographic printing (roller coating) of polyethylene plastic bags. There are two printing lines each consisting of an eight-color printing press and associated natural gas-fired dryer. Emissions are vented primarily through the press and dryer stacks, with some addition fugitive emissions from the ink mixing and cleanup operations.

SUMMARY OF EVENTS

On September 24, 2001, the Idaho Department of Environmental Quality (DEQ) received a request from Yellowstone Plastics that they be made a synthetic minor source. On November 20, 2001, DEQ determined the application complete. On December 10, 2001, Yellowstone submitted a letter clarifying emissions from the bag-cutting operation. On December 20, 2001, DEQ issued a draft Tier II OP to the facility for review. A public comment period was conducted from February 13 to March 14, 2002; no comments were received.

DISCUSSION

1. Emission Estimates and Modeling

   There is no change in the physical or operational design of the facility associated with this permit change. For information, refer to the December 1, 1998, Technical memorandum. Since this Tier II permit would reduce the allowable emissions from the facility, no new modeling is needed.

   Based on the clarification of the bag-cutting operation provided on December 10, 2001, it appears that the particulate matter emissions in the original application (8.51 T/yr) were substantially overestimated (there are no known emission factors for such operations). Releases are judged to be insignificant and do not warrant regulation in this permit. DEQ will verify this judgement in subsequent inspections of the facility.

2. Area Classification

   Yellowstone Plastics is in AQCR 61 located in Bonneville County Idaho. The area is classified as attainment or unclassifiable for all federal and state criteria air pollutants.

3. Facility Classification

   The facility is not a designated facility as defined in IDAPA 58.01.01.006.27. The facility is classified as a SM source because potential emissions fall below major source thresholds only if the source complies with the federally enforceable emission limits in this permit.

4. Regulatory Review

This OP is subject to the following permitting requirements:

a.	IDAPA 58.01.01.401	Tier II Operating Permit
b.	IDAPA 58.01.01.403	Permit Requirements for Tier II Sources
c.	IDAPA 58.01.01.404.01(c)	Opportunity for Public Comment
d.	IDAPA 58.01.01.404.04	Authority to Revise or Renew Operating Permits
e.	IDAPA 58.01.01.406	Obligation to Comply
f.	IDAPA 58.01.01.470	Permit Application Fees for Tier II Permits
g.	IDAPA 58.01.01.625	Visible Emission Limitation
h.	IDAPA 58.01.01.650	General Rules for the Control of Fugitive Dust
i.	IDAPA 58.01.01.677	Particulate Matter from Minor and Existing Fuel-burning Equipment

5. Permit Conditions

a. Emission Limits – VOCs and HAPs

IDAPA 58.01.01.401.01.d authorizes the issuance of Optional Tier II Operating Permits containing "a potential to emit limitation to exempt the facility from Tier I permitting requirements." Yellowstone Plastics requested to become such a "synthetic minor" source. Under the current PTC #019-00041, issued October 13, 2000, the only pollutant with the potential to exceed the Tier I emission thresholds is VOCs. The revised permit lowers the allowable VOC emissions from less than 249 T/yr to less than 99 T/yr and maintains the operating, monitoring, and recordkeeping provisions from the current PTC to ensure compliance with the revised VOC limit.

b. Emission Limits – Natural Gas Combustion Sources

The two dryers are subject to the 20% opacity limit in IDAPA 58.08.01.01.625 and 0.015 grains per dry standard cubic feet in IDAPA 58.01.01.677. No monitoring, recordkeeping or reporting conditions are included for these requirements in the original PTC or in this Tier II permit because of the extremely small likelihood of a violation for these minor combustion sources.

6. AIRS

AIRS/AFS FACILITY-WIDE CLASSIFICATION DATA ENTRY FORM

AIR PROGRAM / POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	TITLE V	AREA CLASSIFICATION A – Attainment U – Unclassifiable N – Nonattainment
SO_2	B						A
NOx	B						A
CO	B						A
PM_{10}	B						A
PM (Particulate)	B						NA
VOC	SM					SM	A
THAP (Total HAPs)	SM					SM	NA
			APPLICABLE SUBPART				

AIRS/AFS CLASSIFICATION CODES:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each pollutant which is below the 10 ton-per-year (T/yr) threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.

AFS = AIRS Facility Subsystem
AIRS = Aerometric Information Retrieval System
B = Actual and potential emissions below all applicable major source thresholds.
C = Class is unknown.
CO = Carbon Monoxide
HAPs = Hazardous Air Pollutants
MACT = Maximum Achievable Control Technology
NESHAP = Nation Emission Standards for Hazardous Air Pollutants
NO_x = Nitrogen Oxides
NSPS = New Source Performance Standards
PM = Particulate Matter
PM_{10} = Particulate Matter with an Aerodynamic Diameter of 10 Micrometers (um) or Less
PSD = Prevention of Significant Deterioration
SIP = State Implementation Plan
SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.
SO_2 = Sulfur Dioxide
VOC = Volatile Organic Compound

FEES

Fees apply to this facility in accordance with IDAPA 58.01.01.470. The facility paid the permit application fee for this revised Tier II OP of $500 on February 14, 2002.

RECOMMENDATIONS

Based on the review of the application materials, and all applicable state and federal regulations, staff recommends that DEQ issue a proposed Tier II OP to Yellowstone Plastics. An opportunity for public comment on the air quality aspects of the proposed OP shall be provided in accordance with IDAPA 58.01.01.404.01.c. Staff members have notified the facility in writing of the required Tier II application fee of $500.00. The permit will be issued upon receipt of the fee.

KK/KB/sm G:\AIR PERMITS\T 2\YELLOWSTONE PLASTICS\FINAL PREP\T2-010508 TECH MEMO.DOC

cc: Rensay Owen, Idaho Falls Regional Office
Sherry Davis, Technical Services
Kent Berry, EQM
AQ Program Office

APPENDIX

TECHNICAL MEMORANDUM

FOR 12/1/98 PTC
FOR YELLOWSTONE PLASTICS, INC.

December 1, 1998

MEMORANDUM

TO: Orville D. Green, Assistant Administrator
Air and Hazardous Waste

FROM: Susan J. Richards, Chief
Air Quality Permitting Bureau

SUBJECT: P-980096, Yellowstone Plastics, Inc., Idaho Falls
(Flexographic Printing Facility, PTC No. 019-00041)

PROJECT DESCRIPTION

Yellowstone Plastics, Inc., is proposing to construct a flexographic polyethylene plastic bag printing facility in Idaho Falls. The facility has the potential to emit VOC emissions at 249 tons per year.

DISCUSSION

On September 8, 1998, the Idaho Department of Health and Welfare, Division of Environmental Quality (DEQ) received a PTC application from Yellowstone Plastics, Inc., for the printing facility. On October 2, 1998, the application was determined complete.

FEES

The Yellowstone Plastics, Inc. facility will be a major facility as defined in IDAPA 16.01.01.008.14. Therefore, registration and the payment of fees will be applicable in accordance with IDAPA 16.01.01.525. On the basis of using allowable emisions, the fees would be approximately $7,860.

RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, staff recommend that Yellowstone Plastics, Inc., be issued PTC No. 019-00041 for the printing facility. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

SJR/KH/ms G:\AH\HANNA\YELLOW\980096.MM

cc: R. Wilkosz/TSB
P. Rayne/AFS
Idaho Falls RO
Source File (019-00041)
COF

with reducing solvent, this equates to 90,308 gallons of ink/solvent mixture used per year.

Reducing solvents that are added to the inks:

Glycol Ether DPM:	398 gal/yr; 7.94 lb/gal
AMPAC #3:	8,358 gal/yr; 6.82 lb/gal; mixture contains 2.24% methanol, 45% ethanol, 30% n-propanol, 20% n-propyl acetate, 2.7% ethyl acetate
AMPAC #4:	4,114 gal/yr; 6.73 lb/gal; mixture contains 1.12% methanol, 2% xylene, 22% ethanol, 30% n-propanol, 20% n-propyl acetate, 2.1% ethyl acetate
AMPAC #5:	5,893 gal/yr; 6.73 lb/gal; mixture contains 7.66% methanol, 37% ethanol, 45% n-propanol, 10% n-propyl acetate
Isopropanol:	18 gal/yr; 6.58 lb/gal
N-Propanol:	12,936 gal/yr; 6.71 lb/gal
N-Propyl Acetate:	4,557 gal/yr; 7.4 lb/gal
Ethanol:	1,270 gal/yr; 6.81 lb/gal

Solvents used for printing press cleanup:

N-Propanol:	4,847 gal/yr; 6.71 lb/gal
N-Propyl Acetate:	1,708 gal/yr; 7.4 lb/gal
Ethanol:	475 gal/yr; 6.81 lb/gal

3. Emission Estimates

All emission estimates given below are uncontrolled. The facility does not include emission control equipment. The estimates are based on operations of 24 hours per day and 8,760 hours per any consecutive 12-month period (hr/yr), unless stated otherwise. Emission estimate calculations are included as Appendix A of this memo.

3.1 Toxic Air Pollutant Emission Estimates

As presented below, potential uncontrolled Toxic Air Pollutant (TAP) emissions from the printing operations were estimated to determine compliance with applicable TAP standards located in IDAPA 16.01.01.585 and 586. Note that all compounds emitted as uncontrolled TAPs were found to be less than the applicable emissions screening levels (EL). Therefore, modeling of these emissions was not required. The facility is not "major" as defined at IDAPA 16.01.01.008.14 since the PTE is less than

On this basis, the facility is "major" as defined in IDAPA 16.01.01.008.14(c) since the PTE is greater than 100 T/yr. Also, since the PTE is less than 250 T/yr, then the exemption regarding the requirement for BACT applies as given in IDAPA 16.01.01.205.04(a) for this PTC.

3.4. NAAQS

The projected uncontrolled emission rates will not result in a violation of a National Ambient Air Quality Standard (NAAQS). Emission estimate calculations are included in Appendix A of this memo.

4. Modeling

Modeling for impact analysis of the various pollutants was performed using the EPA SCREEN3 model. A copy of the modeling results is incorporated into this technical memorandum as Attachment B.

5. Facility Classification

The proposed facility is a major facility as defined in IDAPA 16.01.01.006.54 on the basis of estimated VOC emissions over 100 T/yr. It is not a designated facility and is not subject to New Source Performance Standards (NSPS). Subpart KK of 40 CFR Part 63, (National Emissions Standards for the Printing and Publishing Industry), is not applicable (NESHAPs).

The SIC code for the facility is 2759 and the facility AIRS classification is A1.

6. Area Classification

Yellowstone Plastics, Inc., plans to locate the printing facility in Idaho Falls. The area is designated as an attainment or unclassifiable area for all regulated criteria air pollutants. It is in the AQCR 61 region and in zone 12.

7. Regulatory Review

The project requires a Permit to Construct. The following were reviewed in the permit to construct analysis:

IDAPA 16.01.01.006	Definitions
IDAPA 16.01.01.201	Permit to Construct
IDAPA 16.01.01.203	Permit Requirements for New and Stationary Modified Sources
IDAPA 16.01.01.205	Permit Requirements for New Major Facilities/Modifications in Attainment or Unclassifiable Areas
IDAPA 16.01.01.209	Procedures for Issuing Permits

Appendix A

Emission Estimate Calculations

P-980096
Yellowstone Plastics, Inc., Idaho Falls

1/23/98

6:56:40
*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Yellowstone Plastics, Inc., Idaho Falls; Stacks for Dryer # 1 & 2

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.126000
STACK HEIGHT (M)	=	7.3152
STK INSIDE DIAM (M)	=	.2033
STK EXIT VELOCITY (M/S)	=	36.9148
STK GAS EXIT TEMP (K)	=	366.4833
AMBIENT AIR TEMP (K)	=	293.1500
RECEPTOR HEIGHT (M)	=	1.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	7.1628
MIN HORIZ BLDG DIM (M)	=	60.9600
MAX HORIZ BLDG DIM (M)	=	76.2000

MAX = 194 $\frac{ug}{m^3}$
at 54m (177Ft)

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .748 M**4/S**3; MOM. FLUX = 11.263 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	1	1.0	1.0	320.0	29.83	1.87	1.83	NO

Combustion Evaluation 11-23-98
Yellowstone Plastics Dryer Burners 1 & 2

Fuel Data (% by weight)

S	0
N2	5.15
C	71.97
H2	22.88
H20	0
O2	0

*

Fuel burned (lb/hr)	437
Excess air (%)	10
Stk temp (F)	200
Stk press (atm)	0.93

Combustion Air Required

	O2 lb.mole	N2 lb.mole
S	0	0
N2	0	0
C	26.20908	98.59604
H2	24.9964	94.03408
O2	0	0
	51.20548	192.6301

stioc. comb air = 269.6358 lb.mole/hr
stoic. dry comb air = 218.8392 lb.mole/hr

Flue Products

	lb.mole	lb/hr
SO2	0	0
N2	212.6969	5955.513
CO2	26.20908	1153.199
H2O(comb)	49.9928	899.8704
O2	5.120548	163.8575
H2O(fuel)	0.00	0
dry	244.0265	
wet	294.0193	

Volume of flue gas (acfm)	2539.378
Volume of flue gas (sdcfm)	1544.297
Volume of flue gas (dscfm@7%O2)	2077.353
Volume of flue gas (dscfm@15%O2)	4847.157
Volume of flue gas (dscfm@8%02)	2237.149
Volume of flue gas (dscfm@3%02)	1615.719
Volume of flue gas (dscfm@10%02)	2643.904

* Applying value for natural gas from Table 5-1 of the EPTI/EPA Course 427 Workshop, Combustion Evaluation in Air Pollution Control:

$$\frac{10{,}000{,}000 \ \frac{Btu}{hr}}{22{,}904 \ \frac{Btu}{lbm}} = 437 \ \frac{lbm}{hr}$$

2539 acfm is then used in the SCREEN3 Model

JUN-14-2000 11:09 FROM-IDAHO DEQ 2083730143 T-106 P.022/023 F-220